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Xiangrong Cai

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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/784,757
Filing Date: February 23, 2004
Appellant(s): CAI, XIANGRONG

Holmes W. Anderson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/16/2008 appealing from the Office action mailed 3/18/2008.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following are the evidences relied upon in the rejection of claims under appeal:

7,233,987	WATKINSON	6-2007
6,331,983	HAGGERTY	12-2001

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(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkinson in view of Haggerty et al. (US Pat. 6,331,983).

Regarding claims 1, 6, 10 and 16, Watkinson teaches a method of maintaining consistent group membership data (i.e. **membership information to a group and the group relates to a services**, abstract) at a Designated Router (e.g. **104A is a designated router**, col. 6, lines 44-45) executing the Protocol Independent Multicast (PIM) protocol (i.e. **generating a corresponding PIM from the IGMP request**, col. 6, lines 20-25) including the steps of:

receiving, at the Designated Router, an IGMP membership message (i.e. **receiving the request related to membership change to a group is a form of an IGMP membership message**) from an IGMP host (col. 5, lines 35-42) operating according to the Internet Group Multicast Protocol (IGMP) protocol (col. 5, lines 35-42);

translating the IGMP membership message into a PIM membership message (i.e. translating IGMP message into PIM, col. 5, lines 10-20); and

selectively forwarding (i.e. **router 104A forwards the request towards the source of the network**, col. 4, lines 45-49) the PIM membership message to a device upstream from the Designated Router (i.e. **designated router 104A forwards upstream [route toward the source] to the intended program** col. 4, lines 45-49; col. 6, lines 53-56), but does not explicitly teach delaying forwarding a PIM prune message in response to an IGMP Leave if the Designated Router is In the upstream path from the IGMP host.

However, in the same field of endeavor of IGMP membership message, Haggerty et al. disclose delaying forwarding a PIM prune message in response to an IGMP Leave if the Designated Router is In the upstream path from the IGMP host (**causing to reset the timer for forwarding message so that the sending and receiving of messages can be delayed**, col. 19, lines 34-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the resetting the timer for forwarding of GMP membership message taught by Haggerty et al. into the IGMP membership message taught by Watkinson to avoid taking down connections when it's meant to do so such that flowing of messaging is smoothly carried out.

Regarding claim 2, Watkinson further teaches the method according to claim 1, wherein the step of selectively forwarding further includes the steps of: determining whether the designated router is upstream from the host device (i.e. **determine the outgoing to reach address that's leading towards router; upstream is the same as determining whether the designated router is routed toward the source**; col. 8,

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lines 3-18); and responsive to a determination that the designated router is upstream from the host device, modifying an entry in a PIM routing table associated with the IGMP host (i.e. **the method updating forwarding table associated with the group to reflect the request**; col. 2, lines 20-22) responsive to the IGMP membership message (i.e. **Group/source table that includes membership message needs to be updated upon any changes**; col. 7, lines 10-45).

Regarding claim 3, Watkinson teaches the method according to claim 2, wherein the IGMP membership message indicates that a member is joining a multicast group (i.e. **IGMP construct a multicast protocol**, col. 2, lines 38-43), and the step of modifying includes the step of generating and storing a PIM entry in a multicast routing table responsive to information in the IGMP membership message (col. 5, lines 35-50; col. 6, lines 15-35).

Regarding claim 4, Watkinson teaches the method of claim 1, Haggerty et al. teach the IGMP membership message is a Report message, including an identifier and network interface for a member of a group, and where the step of translating translates the Report message into a PIM Join message (col. 5, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IGMP membership message as a report message taught by Haggerty et al. into the IGMP membership message taught by Watkinson to frequently distribute all addresses to the group multicast address.

Regarding claim 5, Watkinson teaches the method of claim 1, wherein the IGMP membership message is a Leave message, indicating an identifier and network

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interface for a member leaving a group, and wherein the step of translating converts the Leave message to a PIM Prune message (col. 6, lines 64-67).

Regarding claim 7, Watkinson teaches the method of claim 6, wherein the step of selectively forwarding the PIM membership message operates in response to whether the entry exists in the routing table and in response to whether the designated router is upstream from the IGMP Host device (i.e. **determine the outgoing to reach address that's leading toward router; upstream is the same as determining whether the designated router is routed toward the source**; col. 8, lines 3-18).

Regarding claim 8, Haggerty et al. further teach the step of delaying removal of the member from the group at the designated router for a predetermined time period (col. 19, lines 25-35).

Regarding claim 9, Watkinson further teaches wherein the designate router forwards the PIM membership message on the network interface on which the IGMP membership message is received (col. 6, lines 25-30).

Regarding claim 11, Watkinson further teaches responsive to whether the PIM membership message is addressed to the Router (col. 6, lines 40-50).

Regarding claim 12, Watkinson teaches the method according to claim 11, further including the step of only forwarding the PIM membership message if the PIM message is addressed to the Router and an entry is stored in the routing table (col. 7, lines 1-25).

Regarding claim 13, Haggerty et al. further teach IGMP host is downstream from the router (i.e. **either upstream or downstream**, col. 18, lines 21-29). It would have

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been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IGMP message sent downstream taught by Haggerty et al. into IGMP host message taught by Watkinson to detect the presence of active attached multicast routers both directions (Watkinson, col. 18, lines 29-33).

Regarding claims 14-15, Watkinson teaches the method according to claim 10, Haggerty et al. further teach the step of suppressing forwarding of the PIM membership message in response to the entry being stored in the routing table and the IGMP Host not being downstream from the Router (col. 18, lines 21-29).

(10) Response to Argument

I (Issue): Do Watkinson and Haggerty, in combine, show or suggest the method with the feature of forwarding a PIM prune message in response to an IGMP Leave is delayed if the Designate Router is in the upstream path from the IGMP host as is required by claims 1, 9 and 16 of the present application?

- In the first argument, the Appellant argues that references “*fail to teach or suggest that forwarding a PIM prune message in response to an IGMP Leave is delayed if the Designated Router is in the upstream path from the IGMP host... The limitations recited in claims 1, 6 and 16 helps avoid this problem because the presence of such other **members can be indicated by a Join** received during the delay. The Office asserts that this feature is shown in Haggerty at column 19, lines 40 and 58. However, the cited passages describe both a different problem and a different solution. In particular, Haggerty describes delaying queries on access ports having active senders as a technique for reducing the IGMP Active*

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*Senders problem. As stated at column 19, lines 25- 32 and lines 35-36, a query is a request for an IGMP membership report, i.e., a request for Joins. The limitation recited in claims 1, 6 and 16 is not delaying a query, but rather delaying forwarding a PIM prune message in response to an IGMP Leave if the Designated Router is in the upstream path from the IGMP host. Although **the cited passage teaches a timer**, that timer determines the time during which reports must be received, rather than when a PIM prune message is sent. Consequently, the cited passage fails to show even one of the following inter-related claim limitations: (1) an IGMP Leave, (2) the Designated Router is in the upstream path from the IGMP host, and (3) delaying forwarding a PIM prune message. The Office cannot simply read these details into the reference based on the presence of a timer.”*

In response to the first argument, the Appellant’s argument has not been found to be persuasive. In fact, the Appellant seems to agree with the disclosure of Haggerty regarding the presence of members can be indicated by a Join request and a timer delaying a query forwarding a PIM message. Haggerty discloses the delaying the removal of a member and delaying forwarding of a PIM prune message. Haggerty discloses delaying the removal and forwarding by resetting the timer (col. 19, line 40); thus, it causes message flow arriving are forwarded (col. 19, line 58) upstream after the delay timer is up. It affects the membership report to be restored on the sniffed port and forwarding packets to the outports/receivers (col. 19, lines 62-65). Thus, it enables to

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setup the delay timer to effectively solve the problem to delay membership removal as well as to delay forwarding a message.

- In the second argument, the Appellant argues that *“the cited limitation not processing a PIM prune message if a local IGMP host exists. The cited passage fails to show even one of the following inter-related claim limitations: (1) not processing a PIM prune message, and (2) if a local IGMP host exists.”*

In response to the second argument, the Appellant's argument has not been found to be persuasive. At least in Figure 7A, Haggerty discloses if there is a local IGMP host exit ("201"), the establishment of the filter is "not processing" ("203") because it is not necessary to go through "203" unless local host does not exist.

- In the third argument, the Appellant argues that the "negative limitation 'not processing' recited in claim 10 does not render the claim indefinite. The MPEP provides the following examples of claim indefiniteness: terminology inconsistent with accepted meaning; relative terms; broad and narrow range limitation in same claim; lack of antecedent basis; literal translation; means lacking function, omission of essential steps or relationships; and the introductory phrases "or the like," "such as," and "for example." There is no rule that a negative limitation renders a claim indefinite.”

In response to the third argument, the Appellant's argument has not been found to be persuasive. The Examiner would like to assert that "not doing something or not

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processing” is a negative limitation that does not make clear the boundary of the subject matter for which protection is sought, see MPEP 2173.05(i).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

TuanKhanh Phan

Conferees:

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